

MISCELLANEOUS NOTES ON AUSTRALIAN DIPTERA. I.

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(Four Text-figures.)

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Family LEPTIDAE (Rhagionidae).

The name Leptidae is the one by which this family is known in England and Australia, but in America Rhagionidae has been adopted, following Kertész.

DASYOMMA ABDOMINALIS, n. sp.

♂. Eyes contiguous, bare; the antennal triangle, face and occiput below are light grey, the occiput above and the ocellar tubercle black. Antennae and palps yellow with a few black hairs on the basal segments of the former, and dusky hairs on the latter; elsewhere the hairs yellow. Thorax uniformly reddish-brown, approaching chestnut colour but richer, and darkest on the pleura with all hairs black. Abdomen uniformly shining black and with dark hairs. Legs dusky reddish-brown.

Hab.—New South Wales: Como, 1st October, 1921, found resting in a large tunnel forming a water-channel that runs under the railway. The specimen is unique.

Note.—Species of *Dasyomma* hitherto described from the Australian region have the eyes hairy and are limited to Tasmania. Several species are now known from the mainland of Australia, but only two are before me, both being distinguished by the bare eyes and the colour pattern.

DASYOMMA FLAVA, n. sp.

♀. Apex of proboscis, hairs on the palpi and on the two basal segments of the abdomen and on the upper part of the occiput black; hairs elsewhere and on the head yellow. Eyes bare. Thorax uniformly yellow with black hairs above, the abdomen shining yellow and slightly dusky towards the apex. Legs at trochanters and extreme base of the femora black or dusky, and the tibiae black, but elsewhere yellow. Wings hyaline.

Hab.—New South Wales: Blackheath, 20th November, 1919, one female. I have seen the male of this, but it is not before me. The large valley on the west of Blackheath township has a creek near overhanging rocks from which this specimen was taken; the rocks are adjacent to the footbridge crossing the creek.

CHRYSOPILUS FASCIPENNIS, n. sp.

♂. Eyes contiguous, bare, ocellar triangle black. Frons and face black with a pulverulent covering that makes them shine dull yellow in accordance with the incidence of light; the large bulbous tubercle in the centre of the otherwise

sunken face, and the head below are dull yellowish; occiput grey, and all hairs white or yellow. Proboscis, palpi and antennae brown, and arista microscopically pubescent. Thorax and abdomen black-grey with unevenly scattered light golden tomentum and black hairs, whilst the pleura may have light grey patches or even be entirely light grey, and all hairs there are white. Coxae light grey with light golden hairs, otherwise the legs are yellow. The hyaline wings have yellow-brown veins along which brown infuscations are conspicuous at the apex of the two upper radial veins, the whole of the forked portion of the two lower radial veins, at the apex of the discal cell and along the veins branching from there, giving a general impression of an interrupted fascia across the wing-tip, but sometimes these marks become joined at the base and sometimes they are very faint.

♀. Similar to the male, with well separated eyes and the head entirely light grey or almost so.

Length, 10 mm.

Hab.—Queensland: Upper Brookfield, Brisbane; 7 ♂, 5 ♀. Mt. Glorious; 1 ♀. December and January.

Notc.—This, the largest known Australian Leptid, is common in the Queensland rain forests, and I have failed to trace it as a described species in the islands north of Australia. The other Australian species have unmarked wings and are small in size.

Family STRATIOMYIIDAE.

Subfamily HERMETIINAE.

There are six generic names attributed to species that occur in Australia, and four certainly are valid and may be recognized by the following key:

- 1. With spines on the scutellum 2
 Without spines on the scutellum 4
- 2. With a pair of strong spines on thorax, one placed each side above wing insertions. *Negritomyia* Bigot.
 Without such spines 3
- 3. Venation normal, M_3 being present *Elissoma* White and *Pycnothorax* Kertész.
 Vein M_3 absent gen.
- 4. Female with a broad acute flange behind the eyes
 *Lagenosoma* Brauer and *Perastomastix* Enderlein.
 Female without such a flange *Hermetia* Latreille.

I propose to use the first name whenever two names occur in the above key, and to join the genus left unnamed under *Elissoma*, until adequate material accumulates to show how further divisions are best formed.

Negritomyia and *Hermetia* are represented in Australia by one known species each and the other two are plentifully represented. All genera have five fully-developed segments in the abdomen, the others being more or less reduced and retracted when at rest.

Genus ELISSOMA White.

White described this genus on a species that runs to other forms also provided with scutellar spines, and *Pycnothorax* Kertész belongs to the same group and is probably congeneric. The form described below differs in having vein M_3 missing, but it comes so close to White's genus that it seems inadvisable to separate it. Moreover, another species before me differs in having the scutellum almost conical and raised to stand at right angles to the thorax, as well as missing the vein M_3 . Indeed variations of this nature cannot be accepted as of generic importance and it becomes very evident as more species accumulate,

that the genera will need to be erected on better grounds than has been done in the past.

ELISSOMA BRUNNEA, n. sp.

♂. On the antennae eight segments are traceable, but only six of them are articulated and their lengths correspond to the following percentages: 11.2; 6; 26.6; 3.8; 11.4; and 41. The eyes are contiguous for about one-third of the frons length. The abdomen has five visible segments of which the basal one is very restricted and the widest part is at the apex of the third segment.

In colour the species is mainly brown, faintly varying to yellow-brown, but white occurs on frons, on side of face and on anterior tarsi. Black occurs (or the parts are considerably darkened) on the apical segment of the antennae, on the ocellar tubercle, on the region behind the head, the neck and the small area of the thorax adjacent on the humeral tubercle, on the pleura and posterior coxae, trochanters and basal half of femora, on the first and two-thirds of the second abdominal segment, the basal median area of the third and fourth segments and the majority of the fifth segment. On the two paratypes the legs are entirely yellow and the black of the abdomen not quite so extensive. The hyaline wings have a black-brown stigmal area and a tinted central area. The third median vein is missing.

Hab.—Queensland: Westwood, 12th December, 1924, 1 ♂, taken by A. Burns; Ayr, 2 ♂, 24th December, 1930, taken by J. H. Buzacott.

Subfamily CLITELLARINI.

OPHIODESMA INNODUS Hardy.

This species was described from a pair, and since then four females were taken from grass-trees adjacent to a small swamp north of Southport, Queensland, in December, 1932, by Mr. L. Wassell. This brings the species into line with *O. flavipalpis*, which also is only known to inhabit damp situations.

Subfamily PACHYGASTERINAE.

Key to the genera of Pachygasterinae.

- | | |
|--|----------------------------|
| 1. Scutellum with spines | 2 |
| Scutellum without spines | 3 |
| 2. Abdomen of moderate length, not or hardly broader than thorax | <i>Evaza</i> Walker. |
| Abdomen very short and broad, almost circular, broader than thorax | |
| | <i>Wallacea</i> Doleschal. |
| 3. Scutellum produced into a long finger-like process | <i>Lonchegaster</i> White. |
| Scutellum normal, rounded at apex | 4 |
| 4. Scutellum usually distinctly granulated along apical margin. Radio-median cross-vein excessively short, practically eliminated. Third segment of antennae distinctly globular | <i>Damaromyia</i> Kertész. |
| Scutellum not granulated. Radio-median crossvein long and normal. Third segment of antennae much longer than broad | <i>Dochmiocera</i> Hardy. |

Genus WALLACEA Doleschal.

Of this genus I have seen two species, one being in the Ferguson collection. The type of *W. darwini* Hill has not been examined by me, but the description contains measurements that show the frons to be slightly more than one-quarter the head-width on both sexes. In addition, the scutellum is provided with about eight pairs of spines and a prominent disc-like process (prealar callus) projects from the thorax. These disagree with the characters of the following species.

WALLACEA SPLENDENS, n. sp.

♂. Frons between 0.15 and 0.16 of the head-width and of normal shape, having a transverse depression into which the carina runs. On each side of

the carina, out of this depression, there is a line of punctures running to each side of the ocellar tubercle which extends to almost the whole width of the parallel-sided frons. The long hairs of the tubercle are brown-black, and those of the frons are similarly coloured but hardly discernible. A pair of silvery hair spots at the base of the antennae. The black face has scattered dark hairs and occasional silvery ones, together with a very thin white lateral border which extends to the lowest corner of the eyes. Oral margin brown. Head, behind the eyes, black with black-brown hairs and occasional silver ones. Antennae orange with a white terminal arista which is brown at the base. Thorax thickly studded with silvery-white hairs, these being depressed, whilst upright hairs are black-brown. The silvery hairs, when seen from the front, form a thick mass extending on to the scutellum, which has four small pairs and one large pair of marginal spines arising from the scutellum and not from a specially formed flange as in the species in the Ferguson collection. The silvery pubescence depends upon the incidence of light to show its most vivid colour and at first may be found missing from parts of the dorsum, but actually the hairs can be seen to form a dense mass everywhere there except the lateral borders of the scutellum, where they are entirely absent. The three basal segments of the abdomen are completely covered on the upper surface with these silvery hairs, whilst they occur beyond this in the usual pattern with the central part of the sclerite black and shining. Other characters are quite normal to the genus.

♀. The frons is between 0.26 and 0.27 of the head-width, thus corresponding closely to that of *W. darwini*. There are more hair pits on the frons compared with those of the male, and the white spots above the antennae are missing. The number of silvery hairs is greatly reduced as in *W. darwini*.

The eyes, which have very scattered short hairs on both sexes, have a colour pattern on the female (that of the male not noted) when alive. My notes and sketch show a large red blotch covering the upper third of the otherwise green area and this blotch has three parallel elongate marks, the middle one being green like the main eye-colour, those above and below being blue.

Hab.—Queensland: Brisbane, 1931, 1 ♂ (holotype) in May, 1 ♀ (allotype) in September, 1 ♀ (paratype) in November. I believe I am correct in allying the sexes.

Genus LONCHEGASTER White.

When in Melbourne last I examined and made notes and drawings of the paratype of White's species in the National Museum, but these are now mislaid. Nevertheless I had concluded at the time that the two Queensland species before me were not conspecific with White's, although one was very close. As far as I can now judge, the only specific character that will readily distinguish the three forms lies in the scutellum, which is somewhat triangular, with a terminal elongation which slightly converges towards the apex, where it is broadly rounded. One of the Queensland forms has the scutellum strongly raised, much like that of the typical species, whilst the other has it lying in a plane with the thorax.

LONCHEGASTER DECUMBENS, n. sp.

♀. Black with yellow antennae, legs and wing veins. Frons converging slightly towards the antennae, broad, a little less than 0.29 of the head-width and with uniformly scattered hairs each side of the slender carina that tapers to the part where the frons recedes near the antennae and where two silvery-yellow



hair spots lie. These hair spots extend down each side of the strongly receding face as a rather broad stripe. Behind the eyes the head is strongly swollen, giving a broad posterior orbital margin. Thorax rather densely covered with hair-pits from which arise strongly depressed yellowish hairs forming conspicuous pubescence over the dorsum. The hairs of the pleura are scanty and black. The scutellum lies practically in the same plane as the thorax and is studded with hair-pits and black hairs. It is triangular in shape, being as long as the width at the base, from whence, slightly on the dorsal side, it is produced, finger-like, reaching about half as far again. This prolongation is nearly three times as long as its maximum width. The abdomen is more brownish than black, and probably abnormal, but it has less dense hair-pits and black-brown hairs.

Hab.—Queensland: Brisbane, October, 1924, 1 ♀.

Note.—Another specimen before me is identical, but the scutellum is raised and so presumably it belongs to another species. It is a female from Brisbane, October, 1923.

DOCHMIOCERA AUREOLINEATA Hardy.

♂. Like the female but differs in having the eyes contiguous along the central third of the distance between the ocellar tubercle and the insertions of the antennae. Also the antennae differ in having the arista placed terminally.

Hab.—Queensland: Bunya Mt., 1 ♂ (allotype), 3rd January, 1926, taken by Dr. A. J. Turner. There are a number of females in collections, but this is the only male I have seen.

Family TABANIDAE.

Genus PELECORRHYNCHUS Macquart.

A good deal of unpublished work has been done on this genus by the late E. W. Ferguson, by Dr. Mackerras, and by myself, with a view to combining it in a complete revision describing many new species. The following key forms one of my contributions to that abandoned effort:

- 1. Abdomen of the sexes similar in colour pattern 2
 - Abdomen of the sexes differing in colour pattern, that of the female being orange with three black stripes Group 3
- 2. Abdomen banded with hair bands Group 1 3
 - Abdomen uniformly shining black; bare or practically so Group 2
 - Group 1.
- 3. Abdomen with hair bands alternating with complete white bands 4
 - Abdomen with hair bands alternating with interrupted white bands, or the white almost eliminated 5
- 4. Spots on wing large and confluent so that only six are usually separated. With some red hair on cheeks and on the anterior part of the pleura
 - *nigripennis* Ricardo.
 - Spots on wing smaller, few being confluent, so that ten or more are separated. All hairs of cheeks and pleura yellow *personatus* Walker.
- 5. Abdomen with white bands interrupted in centre, dividing the white area into two parts 6
 - Abdomen with white bands interrupted each side of centre, dividing the white area into three parts, or the white practically eliminated 9
- 6. A white spot confluent with a white stripe on the black stripe of thorax. Wings spotted. Abdomen without red hairs *albolineatus* Hardy.
- At most with only a white spot on the black stripe of thorax 7
- 7. Abdomen with red hairs. Wings spotted *eristoloides* Walker.
- Abdomen without red hairs. Wings not spotted 8
- 8. With conspicuous white spot on black stripe of thorax. No black median mark adjacent to scutellum *montanus* Hardy.
- With spot on black stripe of thorax not white. A black median mark adjacent to scutellum *occidens*, n. sp.

9. Interrupted white bands conspicuous and well defined. Hair bands with black hairs predominating *olivei*, n. sp.
 The white on abdominal bands reduced to inconspicuous and ill-defined spots. Hair bands with fiery red hairs predominating *igniculus* Hardy.

It is not proposed here to review the second and third groups, for these have not come in my special studies and new forms need to be incorporated within one of them. Those already described fall into the following:

Group 2: *fusconiger* Walker (that of Taylor from Queensland is not conspecific); *claripennis* Ricardo, *tillyardi* Taylor, *dequeti* Hardy, and *flavipennis* Ferguson.

Group 3: *fulvus* Ricardo, *distinctus* Taylor, and *mirabilis* Taylor. The first two have the abdomen on the male entirely black, and the third with alternating hair bands and white bands, the latter being broadly interrupted in centre and at sides, restricting the white to two rather small spots on each band.

Group 1 is well represented in Tasmania, much more so than on the mainland; only one species of group 2 is known from Tasmania, and none of group 3. The full list is as follows:

P. nigripennis Ricardo, Cradle Mt., Jan., 1925 (A. J. Turner), (also Victoria and New South Wales).

albolineatus Hardy, Cradle Mt.

eristoloides Walker, Strahan, Jan., 1924, a long series of females found ovipositing in the perpetually damp mud of the track in People's Park; Zeehan, one male on a swamp and probably a stray specimen; Huon District, Dec. and Jan., 1914 and 1916, two males.

montanus Hardy, Mt. Wellington, Jan., 1916 and 1924.

occidens, n. sp. Zeehan, Jan., 1924, and Cradle Mt., Jan., 1917.

olivei, n. sp. Strahan, Jan., 1924.

igniculus Hardy, Cradle Mt., Jan., 1917, and Zeehan, Jan., 1924.

fusconiger Walker, Wynyard, Jan., 1915, and Ulverston.

PELECORRHYNCHUS OLIVEI, n. sp.

A small species with spotted wings and three white spots on the second to fourth abdominal segments.

♂. Eyes contiguous. Face with black hairs blending into the yellow beard. Palpi with black hairs. Antennae black with the basal segments reddish. All hairs behind head yellow. Dorsally the thorax is deep brown covered with mixed black and yellowish hairs. There are two white, well separated stripes lying practically along the whole length, and a short triangular central stripe reaching the scutellum and lying along the apical quarter. The scutellum has a small white area, but the majority is covered with a broad brown border, uniformly wide, and is clothed with long black hairs, except below, where they are yellow. Some yellow hairs occur at and above the wing insertions, and some white hairs on the postalar tubercle, these blending into the white pleural hairs which are so abundant and long that the ground colour is not perceptible.

The abdomen is entirely deep brown on the first segment except for the whitish but obscure lateral spots. The dorsal area of the three following segments is brown with three large white spots on each, whilst ventrally they are white with a narrow black apical band. White hairs occur on the white areas and black hairs on the brown and black areas, but the apical margins of the segments are bordered with bright yellow hairs. The wing spots are smaller, but similar to those on *P. personatus*.

Hab.—Tasmania: Strahan, February, 1924, a long series from two small swamps adjacent to "The People's Park". The type series is a very long one, of which twelve are still before me.

Note.—It would seem that the various species of *Pelecorrhynchus* that occur in Tasmania are mainly restricted to swamps of certain types. No other species was taken on the same swamps as these, nor were they seen away from these small areas of a few acres each. This species is named in honour of Olive Hardy, my wife.

PELECORRHYNCHUS OCCIDENS, n. sp.

P. montanus var. *a*, Hardy, *Rec. Austr. Mus.*, xiii, 1920, 34, fig. 3.

Very similar to *P. montanus* but quite distinct in markings. A diagram of the differences was given in my earlier paper, where it will be noted that the dorsal stripes of the thorax are much wider apart, less irregular in outline and the spots that interrupt them at the suture are less intense. Also there is a remnant of a central stripe adjacent to the scutellum. The lateral and median bands which are joined at the shoulders in my figure are incorrectly given, but there is a tendency towards the character. I have found no other differences between the two species.

P. montanus is only known from Mt. Wellington, occurring on the large swamp at the summit, whereas the present species was first recorded from Cradle Mt., and is now known to extend westward to Zeehan. The species inhabits the fringes of large swamps and is taken resting on or flying over the foliage of the taller shrubs, whereas the species associated on the same areas are distributed over the swamp.

Hab.—Tasmania: Cradle Mt., January, 1917, where it occurred in abundance, and Zeehan, January, 1924, a small series, of which 2 ♂, 2 ♀ are now before me, the others being distributed in various collections. These were taken at the large swamp adjacent to the township and were somewhat scarce and hard to catch. The holotype and allotype are those in the Australian Museum, Sydney, and originally labelled "*montanus* var. *a*".

Family BOMBYLIIDÆ.

With the exception of the Lomatiinae, this family was revised by Mr. F. H. S. Roberts and, partly due to his efforts, there has been some advance in the generic relationship of the genera *Comptosia* and allies. The species placed under *Oncodocera* in Australia do not belong there but apparently will form a new genus. The species retained under *Comptosia* form a bewildering array that seem to form a number of complexes, one of which was combined as a single species by me under the name *Comptosia sylvanus* Fabr. That name, as used, can have no standing, for it is uncertain if Fabricius has the genus, for it does not appear to occur during the period when Banks collected, but makes its first appearance about a month later. Three species were definitely combined under the name.

Comptosia hermeteles Schiner is the only one found in the Brisbane area and extends as far south as Sydney, where it is the first of the genus to appear on the wing.

Comptosia geometrica Macquart, from Tasmania, would appear to be the same species as the common form in Sydney and does not reach Queensland.

Comptosia tricellata, Macquart's second species from Tasmania, would seem to be limited to Mt. Wellington.

Complications start when an attempt is made to bring the abundance of material from the mainland into conformity with the two Tasmanian species. To all appearances they become mingled both in characters and in distribution. Field notes made on the various forms in Australia might aid in the disentanglement of this complex.

Comptosia lateralis Newman is the male of *Comptosia ducens* Walker, founded on the female. There are several other known cases where the white fascia of the wing is limited to one sex, cases being frequently taken *in copula* by Mr. F. A. Perkins at Stanthorpe, Queensland, and by others.

Genus PHTHIRIA Meigen.

Roberts has drawn attention to *P. hilaris* Walker as being a very variable species, and he believes some of the females standing under the name may belong to other species, as yet undefined. Probably there is a complex here, for I can separate, on male characters, two species, of which the females might be readily mistaken for Walker's form. The following key will readily separate these on the males.

1. Proboscis elongate, about three times the length of the head. Face and frons with white hairs on the male. Western Australian species *albocapitis* Roberts.
 Proboscis normal, about twice the length of the head. Eastern Australian species 2
- 2 Face and frons with black hairs on the male *hilaris* Walker.
 Face and frons with white hairs on the male 3
3. Yellow or almost entirely yellow species, even the black of the thorax being strongly tinged with yellow *flava*, n. sp.
 Mostly black with yellow markings *nigrina*, n. sp.

I do not see any means of separating the females of the three species before me, except in the case of *P. flava*, where the two basal segments of the antennae are yellow, while in the others they are black. It will need some very careful field work and, when possible, collecting species *in copula*, before more of this complex can be satisfactorily solved.

PHTHIRIA FLAVA, n. sp.

♂. Head yellow and entirely with white hairs. Eyes contiguous. Antennae with only the third segment black. Proboscis black and about twice the length of the head. Palpi normal, black, reaching to about half the length of the proboscis. Thorax black-grey, strongly tinged with yellow and bearing sparse yellow hairs. From the humeral tubercle to the postalar callus, and the region near the scutellum, the whole of the scutellum and a small part of the pleura are yellow. The abdomen may be entirely yellow or black at the base, with one or two small median spots beyond this. Legs, except coxae, which are black-grey, and the halteres and the veins of the wings are entirely yellow.

♀. Similar to male, but the eyes are widely separated and the yellow of the thorax is much more extensive, the pleura and coxae being almost entirely yellow. The abdomen entirely yellow. The black region behind the eyes fades into the broad yellow margin behind the eyes as on other species, but the black seems much more restricted.

Hab.—Victoria: Ouyen, January, 1931. 7 ♂, 1 ♀. This species was very abundant in one spot in the Mallee country, but time did not permit observation of it.

PHTHIRIA NIGRINA, n. sp.

♂. Like the preceding species, except that the antennae, the thorax including the scutellum, most of the femora and most of the abdomen are black. The hairs

of the head and pleura are white, elsewhere yellow and no black hairs are to be detected.

♀. Similar to that of the preceding species except that the antennae are entirely black and the yellow of the thorax is much less extensive, being reduced to two spots just above the yellow scutellum, the postalar callus and a small adjacent area extending on to the pleura. The coxae and most of the legs are yellow, but the hind tibiae and tarsi are black. On both sexes the segments of the abdomen are black but heavily margined with yellow.

Hab.—Victoria: Ouyen, one pair *in copula*, which forms the holotype and allotype, and three male and one female paratypes, January, 1931. This species is very abundant in the Mallee, but I mistook it for *P. hilaris* and did not collect many.

Family APIOCERIDAE.

Genus APIOCERA Westwood.

There are six specific names attributed to species in this genus, which is a very large one in Australia. The typical form *A. fuscicollis* Westwood, 1835, may be regarded as being conspecific with *Laphria brevicornis* Wiedemann, 1830, and attributed to the common form occurring around Sydney. Although *Pomacera bigotii* Macquart, 1847, is attributed to Tasmania, that is possibly an error, as the genus is not known from there. The illustration does not agree with any form I have seen.

A. maerens Westwood, 1841, is readily recognized, as the palps and proboscis were illustrated by Westwood, and there is only one species in collections that agrees with it.

All the above belong to the sturdily built forms, and one of the more slender types, another Sydney species, has been attributed by somebody (? Froggatt) to *A. asilica* Westwood, 1835.

Hermann's species *A. vulpes*, 1909, is not known to me but should be recognizable by its description.

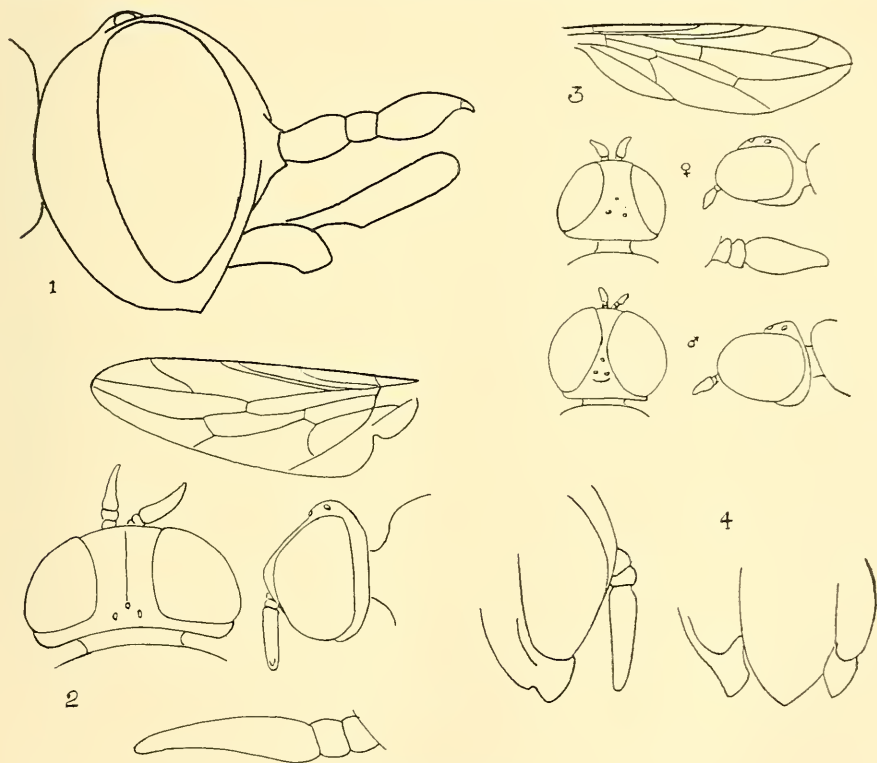
Williston (1908) illustrated a wing of a species which he regarded as being a new genus from Australia but did not give it a name. This species, for which I have searched for many years, proves to be very variable in venation and in no way distinct generically; it is named and described below.

APIOCERA MARITIMA, n. sp. Text-fig. 1.

This fly has the thick pulverulent covering, whitish in colour, that makes the ground colour hardly discernible and there is no pattern. The basal segments of the antennae, the palpi and the legs are tinted with brown, but the third segment of the antennae, the eyes and proboscis are black. The hairs throughout the head, body and legs are light grey. Normally on the female the seventh segment of the abdomen is retracted within the sixth, and it is brown, like the eighth, which protrudes beyond the sixth. The prosternum is small and is surrounded by a membraneous area that is covered with hairs and hence has the appearance of being a sclerite and not membraneous in texture. The venation is more or less, and sometimes considerably, reduced, but it varies towards the normal type; any of the veins, the fourth and fifth radian and the median, may be short or even missing. The diagram given here to show the character of the head appendages will enable the fly to be reliably determined even if other characters be ignored.

Terminalia.—There are two well-defined lamellae on the ovipositor and these are placed in the normal position, being contiguous along the median line. There is a structure that seems to represent a hinged median plate, the two together being situated at the base of the anal papilla, forming a V-shaped depression there, but this is not apparent until the anal papilla is exerted and the two plates, forming the arms of the "V", are drawn apart. The gonopore is situated within a genital groove that is bordered by a chitinous ridge that surrounds it on three sides. This ridge represents two lateral arms of chitin joined by a cross-piece at the base to form a single sclerite. The ninth tergite has at least eight spines placed along the apical edge each side of a strong upstanding dorsal ridge. The eighth sternite appears to be simple, but part of it is turned inwards so that the cleft at its apex becomes hidden within the genital cavity.

On the male, both upper and lower forceps are present, the claspers being fused to the latter. The lamellae are formed by three long plates, the upper ones narrow, the lower one being very broad, translucent and dark at the tip. The



Text-figs. 1-4.

1. *Apiocera maritima*, n. sp. Lateral view of the head.
2. *Scenopinus civiculus*, n. sp. The venation, the head seen dorsally and laterally, and the antenna, seen dorsally, of the female.
3. *Pseudotrichia mariaensis*, n. sp. The venation, the head of both sexes seen dorsally and laterally, and the antenna.
4. *Paralipatus mirabilis* Bezzi. Lower portion of the head showing the flange that borders the eye below.

other characters were not made out with assurance, but the aedeagus seems to be short.

Hab.—Queensland: Southport, November and December, 1931, 5 ♂, 3 ♀, all taken on the coastal dune along the foreshore of Ocean Beach, Burleigh, 9th January, 1932; 1 ♀ in the collection of Mr. B. Blumberg.

Note.—This is one of the sand-coloured flies that frequent sand-dunes and all of which have the same light grey pulverulent covering, often tinged with brown. With it occurred a similarly coloured robberfly of the tribe Clinopogonini and a smaller one of the same tribe not so coloured, also *Anabarrhynchus maritima* Hardy (Therevidae) and *Sarcophaga litoralis* J. and T., besides a few Acalyptrate flies. Later, when *Apiocera maritima* became scarce in December, males of another became plentiful, a rather black species, of which I have not seen the female.

Family SCENOPINIDAE.

The three species of this family that I have found in Australia belong to two genera, recognizable as follows:

Wings with the vein R_3 running free to the wing margin *Scenopinus* Latr.
 Wings with the first median vein meeting the vein R_3 before it reaches the wing margin *Pseudatrachia* O.-S.

SCENOPINUS Latreille.

I believe *S. fenestrata* Lin. has been reported from Australia, but I have failed to find the reference and it is not in any Australian collection I have seen. From New Guinea *Omphale papuana* Krober is described and also *Scenopinus birói* Kertész. In the Hawaiian Islands, Greenshaw recorded *Scenopinus nigra* Degeer, a species of the Northern Hemisphere. I have been unable to ally the following species to these.

SCENOPINUS CIVICULUS, n. sp. Text-fig. 2.

♀. Head as broad as thorax, black. Frons not quite one-third the head-width, mostly shining and smooth, but slight punctures occur in two rows, irregular in shape, each side of the median depressed line. The punctures extend over the ocellar tubercle and some slight wrinkles occur, mainly on the lower half of the frons. Behind the eyes there is a well developed flange, shining and with but few punctures, these being mainly confined to the lower half. Seen in profile the frons extends a little in front of the eyes, being broadest at the ocelli and disappears at the antennae. The oral cavity is large, leaving but little of the face to be seen, this being covered with a slightly grey tomentum. The hairs on the cheeks and elsewhere are somewhat yellowish. Antennae brown, with the third segment long, and a marked depression near the apex on the outer side. The eyes, in life, have a straight thin transverse colour band, placed so as to point slightly above the antennae. The band reaches across the eye from margin to margin.

The thorax is black, fairly densely covered with punctures and wrinkles, the slight hairs are somewhat yellowish. The scutellum is semicircular, similar to the thorax in other respects and with a subapical depression bordering the outer margin at about two-thirds its length. Below the scutellum and on the post-humeral callus, the colour is yellowish-brown.

The shining black abdomen is sparsely punctured, somewhat depressed, and about as long as the head and thorax united; it is conspicuously broader towards the apex. Legs brown, apex of the tarsi stained with black. The hyaline wings have yellowish-brown veins and the halteres have a white club. Length 5.6 mm.

Hab.—Queensland: Brisbane, November to March, 1924, and subsequent years, 5 ♀ in my collection and 1 ♀ in that of Mr. F. A. Perkins. New South Wales: Sydney, 26th November, 1920, 1 ♀. South Australia: Adelaide, January, 1931, 1 ♀, and another without data. Mostly from windows.

PSEUDATRICHIA Osten-Sacken.

This American genus was not recorded from any other part of the world till 1922, when I recorded it as Australian. There are two species taken by me, one being from Sydney, probably La Perouse, on 1st December, 1918, but this small brittle pair taken *in copula* has completely broken up, the head, thorax, wings and legs of the male being all that is left. It was about half the size of the one described below.

PSEUDATRICHIA MARIAENSIS, n. sp. Text-fig. 3.

♀. Head as wide as or slightly wider than thorax; elongate, so that seen laterally it is somewhat elliptical. Frons wide, one-quarter the width of the head at its narrowest part. The head behind the eyes is very bulging, no flange is formed and so the cavity behind the eyes is slight. Seen laterally the ocellar tubercle stands above the eyes and the frons is mainly hidden. The frons is shining, but there are two rows of punctures each side of the median depression; these punctures stop before reaching the ocellar tubercle. In conformity with the elongate head, the face recedes abruptly. The hairs of the head are more abundant than those of the preceding species and somewhat yellowish. The antennae have the third segment only two and a half times the length of the first and second segments combined, rather conical in shape and with a small depression at the apex.

The thorax is black, rather densely covered with punctures and yellowish hairs. The semicircular scutellum is scarcely punctured, shining and bulging, being divided from the thorax by a deep depression. The posthumeral callus has a strong tendency towards being brown. The black abdomen is conspicuously wrinkled, considerably longer than the head and thorax united, and widest at nearly half its length. It has a vestiture of rather long, black, moderately abundant hairs towards the apex. The legs are black, the wings hyaline, with brown veins. The halteres are black.

♂. Agrees with the female in general shape and colour, except that the abdomen is metallic blue-black with white edges at apex of segments. The frons is reduced in the centre so that the eyes are nearly approximate there. The post orbital margins are prominent.

Length of both sexes, 5 mm.

Hab.—Tasmania: Maria Island, 29th December, 1915, 1 ♂, 1 ♀, in perfect condition, taken *in copula*, probably by sweeping along the shore or close to it.

Family DOLICHOPODIDAE.

PARALIPTUS MIRABILIS Bezzi. Text-fig. 4.

The type, in the Australian Museum, does not conform to Bezzi's illustration, which is too attenuated, and in addition there is a flange, bordering the lower portion of each eye at the rear, that Bezzi mistook for palpi. I have given here a camera lucida drawing of the region from the lateral aspect and also from another angle which shows the flange is detached from the facial region. The palpi themselves are hidden in the oral opening, which is choked with sand.

On the type, the biserial acrostichal bristles occur as far as the insertion of the pin, where the area may or may not be flat. According to my key (1930), it runs to *Dolichopus* or to couplet 14, in accordance with whichever the doubtful character may be. The anterior legs are raptorial. I was unable to place the genus in its subfamily, but Bezzi considered it to be Hydrophorinae.

Family SYRPHIDAE.

CERIOIDES ORNATUS Saunders.

This species is associated with bee-hives. Mr. H. Hacker took a series of females at the entrance of hives and I once met with it in this capacity by two males hovering over a hive, and the bees were in an agitated condition until the flies were caught. Evidently it was the humming sound that upset them. More recently Mr. L. Wassell bred it from larvae out of waste brood comb. Half the flies to emerge did so normally, but the remainder failed to form their wings and the scape did not develop, the antennae remaining attached in appearance at the head level, and not in advance of it. Mr. R. Veitch has drawn my attention to a pair in the Department of Agriculture, Brisbane, each being labelled "one of five at nest of *Trigona carbonaria*, 16.2.1927, H. T(ryon)." There can be little doubt that it lives in association with native honey-gathering bees.

CERIOIDES SUBARMATUS C. and B.

This occurs in Brisbane in the very early spring (August), and can be found at *Leptospermum* when the flowering season is not delayed. At the flowers it looks very like a wasp, not only in its general shape, but also on account of its habit of folding the wings longitudinally in the manner of the Diptera. At this time of the year the wasps are absent or but very rare, for it is too early in the season for them.

XYLOTA IRRIDESCENS Ferguson.

♂. Like the female, but the eyes are contiguous for a short distance.

Hab.—Queensland: Brisbane, 1 ♂, the allotype, August, 1927, at *Leptospermum*. The species was originally described from a unique female. There are no others known. The fly, on the wing, looked so like *Lissopimpla semipunctata* Kirby, that I at first mistook it for that common ichneumon.
